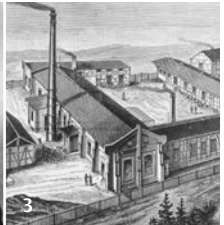
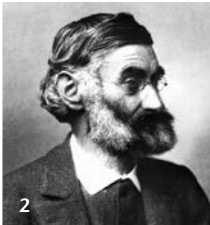




SCHOTT
glass made of ideas

SCHOTT History

Historical and Technological
Milestones



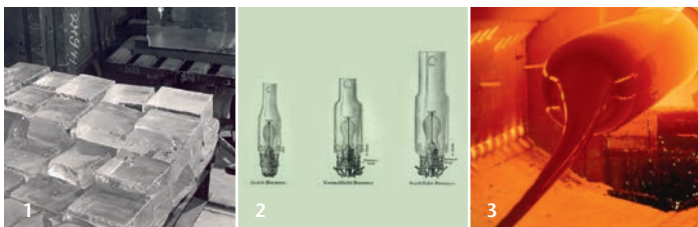
Historical Milestones

- 1884** Otto Schott, Ernst Abbe and Carl and Roderich Zeiss found the Schott & Associates Glass Technology Laboratory in Jena, Germany.
- 1889** 1889 Ernst Abbe founds the Carl-Zeiss-Stiftung (Carl Zeiss Foundation).
- 1891/1919** The glassworks in Jena become a foundation-owned enterprise. Its sole owner is the Carl-Zeiss-Stiftung.
- 1900** Export share already about 50%.
- 1927/1930** The first subsidiaries: Farbenglaswerk Zwiesel (1927), Deutsche Spiegelglas AG (DESAG) in Grünenplan (1930), Glaswerk Mitterteich (1930).
- 1945** "The Odyssey of 41 Glassmakers": After the end of World War II, American troops bring the management and selected experts from Jena to West Germany.
- 1948** The original factory in Jena (Soviet zone of occupation/GDR as of 1949) is expropriated and converted into a state-owned company (VEB).
- 1952** The foundation enterprise is rebuilt in Mainz (Federal Republic of Germany) under the direction of Erich Schott, the son of the company's founder.



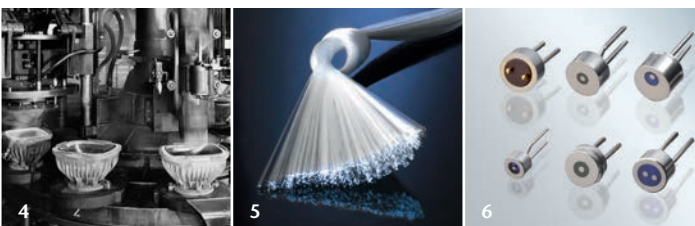
1. Otto Schott
2. Ernst Abbe
3. Original plant in Jena
4. Restart in Mainz
5. Erich Schott

- 1952** Mainz becomes the headquarters and main production site of the SCHOTT Group.
- 1954** First production subsidiary outside of Germany (Vitrofarma in Rio de Janeiro, Brazil).
- As of 1963** Establishment of production plants and sales offices in Western and Southern Europe. A sales office is opened in the U.S. (New York City). SCHOTT grows to become an international group of companies.
- 1966** First sales office in Asia (Tokyo).
- 1969** First production plant in the U.S. (Duryea, PA).
- 1974** First production plant in Asia (Penang, Malaysia).
- 1989** The Otto Schott Research Center in Mainz is put into operation.
- 1991/1995** After the reunification of Germany, SCHOTT in Mainz takes over the ownership of the old main plant in Jena.
- As of 1993** Establishment of production plants and sales offices in Eastern Europe.
- 2002** First production plant in China.
- 2004** Conversion of the foundation enterprise to the corporation SCHOTT AG. Its sole shareholder is the Carl-Zeiss-Stiftung.



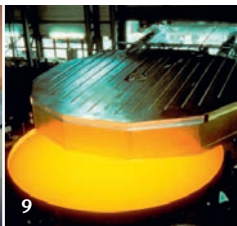
Technological Milestones

- 1884** Otto Schott develops new optical glasses and provides the scientific basis for developing specialized glasses. (1)
- 1884** Glass tubing for thermometer and water gauge glasses.
- 1887/1893** Invention of chemically resistant borosilicate glass that is able to withstand high temperatures and thermal shocks.
- 1894** Casting of large scale optical disks up to 140 cm in diameter for astronomical telescopes.
- 1895** Extremely durable cylinders made of borosilicate glass help the Auer incandescent lighting achieve its breakthrough. (2)
- 1908** Glass tubing for pharmaceutical ampoules, which are distributed under the brand name FIOLAX® starting in 1911.
- 1911** SCHOTT becomes the world's first specialized glass manufacturer to adopt continuous melting in tanks.
- 1914** Processed flat glasses for the household appliance industry.



- 1918** Market launch of heat resistant household glasses that are marketed under the brand name JENAer Glas® as of 1921.
- 1923** Automated and continuous drawing of glass tubing based on the Danner process. (3)
- 1923** Ampoules for pharmaceutical packaging.
- 1930** Automated and continuous drawing of flat glass based on the Fourcault process.
- 1935** Manual production of television bulbs.
- 1938** Development of the first coating techniques.
- 1939** Glass-to-metal seals for electrotechnology.
- 1950** DURAN® laboratory glass becomes the new universal glass for the chemistry laboratory.
- 1955** Fully automated production of television glass components and hollow glass. (4)
- 1964** Fiber optic components for light and image guides. The main application fields are medical technology and lighting technology. (5)
- 1968** ZERODUR® glass-ceramic introduces a new era of telescope mirror substrates for astronomy.

- 1969** Optical glasses from SCHOTT in television and photo cameras deliver spectacular photos and television images of „Apollo 11“, when Neil Armstrong and Edwin Aldrin become the first human beings to walk on the moon.
- 1969** Market launch of glass-to-metal seals for automotive applications. (6)
- 1973** Lightweight eyeglass lenses result in improvements for eyeglass wearers.
- 1973** SCHOTT CERAN® glass-ceramic cooking surfaces make their way into kitchens worldwide. (7)
- 1978** Market launch of PYRAN® fire resistant glass.
- 1979** The first dust removal system is put into operation on a glass melting tank. In the years that follow, SCHOTT sets standards in environmental protection.
- 1979** ROBAX® transparent glass-ceramic for window panels in stoves and fireplaces.
- 1983** Glass tubing for solar thermal power plants based on parabolic trough technology.
- 1985** Anti-reflective AMIRAN® glass for glazing shop display windows, for example.
- 1986** Electronic packaging components for aviation technology.



- 1989** Expansion of expertise in processing flat glasses for the household appliance industry by founding joint ventures with the float glass manufacturers Glaverbel (Belgium) and Gemtron (U.S.A.). (8)
- 1991/
1996** Manufacturing of ZERODUR® telescope mirror substrates with a diameter of 8.2 meters for the Very Large Telescope (VLT) in Chile, using the centrifugal casting process. (9)
- 1993** Thin glasses with thicknesses that start at only 0.03 mm help advance flat display technology.
- 1994** The first floated borosilicate glass worldwide: BOROFLOAT®
- 1996** Internally coated pharmaceutical vials. (10)
- 2002** SCHOTT CERAN® glass-ceramic cooking surfaces without harmful heavy metal additives.
- 2002** Serial manufacturing of prefillable polymer syringes.
- 2005** Market launch of solar receivers for solar thermal power plants based on parabolic trough technology. (11)
- 2007** The first floated glass-ceramic worldwide: PYRAN® Platinum
- 2010** German Innovation Award for environmentally friendly SCHOTT CERAN® glass-ceramic cooktop panels.
- 2011** Xensation® Cover Alumino-silicate glass for touch technologies. (12)



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